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APPLICATION NUMBER: *60/538,216*
FILING DATE: *January 23, 2004*

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166998 U.S. PTO

PROVISIONAL APPLICATION FOR PATENT COVER SHEET

This is a request for filing a PROVISIONAL APPLICATION FOR PATENT under 37 CFR 1.53(c).

Express Mail Label No.

INVENTOR(S)		
Given Name (first and middle [if any])	Family Nam or Surname	Residence (City and either State or Foreign Country)
Basil Norman	FREEMAN	Richmond, British Columbia, Canada

Additional inventors are being named on the _____ *separately numbered sheets attached hereto*

TITLE OF THE INVENTION (500 characters max)

APPARATUS FOR SUPPORTING AN AUDIO/VIDEO SYSTEM WHICH INCLUDES A THIN SCREEN VIDEO DISPLAY UNIT

Direct all correspondence to: **CORRESPONDENCE ADDRESS**

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ENCLOSED APPLICATION PARTS *(check all that apply)*

☑ Specification *Number of Pages* 8
☑ Drawing(s) *Number of Sheets* 10
☐ Application Data Sheet. See 37 CFR 1.76
☐ CD(s), Number _____
☐ Other (specify) _____

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[Page 1 of 2]

Respectfully submitted,

SIGNATURE _____

TYPED or PRINTED NAME Lance A. Turlock

TELEPHONE 604-591-8142

Date January 22, 2004

REGISTRATION NO. 28,362 *(if appropriate)*

Docket Number: FRE0101 US

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APPARATUS FOR SUPPORTING AN AUDIO/VIDEO SYSTEM WHICH INCLUDES A THIN-SCREEN VIDEO DISPLAY UNIT

BACKGROUND OF THE INVENTION

The present invention relates generally to apparatus for supporting an audio/video system which includes a thin-screen video display unit (e.g. a thin-screen television display unit) and related audio/video components such as tuners and other user controls, loudspeakers, and electrical and electronic circuitry and subsystems.

With the introduction of High Definition Television (HDTV), there has been a proliferation of new television sets capable of receiving HDTV signals. These televisions are typically mounted on table tops, walls or purpose-built television cabinets. When so mounted, they often are no longer portable or otherwise easily movable from one room in a house or apartment to allow viewing in another room of the house or an apartment. Further, in a variety of home environments, such televisions can have an unwanted dominant presence within a given room at times when it is desired to use the room for other purposes.

BRIEF SUMMARY OF THE INVENTION

The present invention addresses the foregoing limitations by providing apparatus that enables an audio/video system which includes a thin-screen video display unit to be supported in a manner which allows deployment and retraction of the unit from a housing forming part of the apparatus, and which concurrently provides self-contained support for related audio/video components such as those noted above. The housing is carried on a base which forms an additional part of the apparatus. In addition to the housing and the base, the apparatus also includes a front panel which extends upwardly from the base in close proximity to the housing. At least some of the audio/video components are carried by the front panel. Others may be

carried on the base. Also provided is a removable cover having a top opening through which the thin-screen video display unit may be extended or retracted, and which shields the housing and audio/visual components.

The apparatus readily can be configured in a slim, compact manner allowing for optimal television viewing whilst maintaining an attractive appearance and remaining portable or easily movable from one location to another. Movement around the home or an office can be done safe in the knowledge that sensitive electronic components are housed in a protected position inside the apparatus.

This apparatus can be easily set-up as it requires no external peripheral devices such as a DVD player or amplifiers or speakers. This feature can prove to be advantageous to those who do not wish to be bothered with the laborious task of purchasing and setting-up external peripheral devices. The user would typically only have to connect to a mains electrical outlet to view DVD's. A cable connection or external antenna would be required to view broadcast media.

In addition to the foregoing, the present invention possesses numerous benefits and advantages over known retractable thin-screen and Cathode Ray Tube (CRT) televisions. In particular this invention can be mass produced at a lower cost since it only requires that the thin-screen video display unit can be extended and retracted. Other known thin-screen retractable television enclosures require that all of the main components be retracted. This requirement necessitates the use of a heavier-duty lifting mechanisms such as a chain drive or rack and pinion type design. The present invention can use a belt-drive mechanism which is faster, quieter and more economical to manufacture.

A practical example of the flexibility possessed by the present invention resides in its ability to adapt to the daily schedule of many users. In the daytime it can typically be used for

audio purposes using an optically readable disk player or AM/FM components. At this time the thin-screen video display unit is held within the housing in a retracted position. The apparatus of the present invention then can blend unobtrusively with the decor of a room. At night, the thin–screen video display unit can be raised for television viewing. Advantageously, the base of the apparatus can be provided with wheels to enable the apparatus to be wheeled into alternate locations within a home or office.

A further practical example of the flexibility possessed by the present invention is utilization in locations with limited space. As indicated above, the apparatus can be unobtrusive and can compliment the decor of small rooms when the thin-screen video display unit is in a retracted position. It can be advantageously set-up in the smaller sized rooms typically found in hotels and hospitals. As it is portable or easily movable, it readily can be removed for repair and/or replacement as required.

A further practical example of the flexibility possessed by the present invention is it's use in educational institutions where portability and ease of set-up are important features. Whilst the screen is in its retracted position, it and sensitive audio/video components will be well protected from physical harm whilst stored in an unsupervised environment.

BRIEF DESCRIPTION OF THE SEVERAL VIEWS OF THE DRAWINGS

FIG 1 is a front perspective view of apparatus in accordance with the present invention, including front external components. A thin-screen video display unit supported by the apparatus is shown in a raised position.

FIG 2 is a rear perspective view of the apparatus shown in FIG. 1, including the rear external components.

FIG 3 is the a side elevation view of the apparatus shown in FIG. 1.

FIG 4 is a front perspective view of the apparatus shown in FIG. 1 when the video display unit is in a retracted position hidden from view.

FIG 5a is a partially exploded rear perspective view showing the base, front panel, and a display unit housing forming part of the apparatus shown in FIG. 1. Various audio/visual components carried on the back of the front panel and on the base are also shown..

FIG 5b is a rear perspective view showing the base, front panel, and display unit housing as depicted in FIG. 5 but when in their assembled positions. As well, FIG. 5 illustrates a removable top cover for the apparatus when in a position exploded away therefrom.

FIG. 6a is an enlarged fragmentary perspective view of the motor, shaft and belt located at the bottom of the display unit housing.

FIG. 6b is a plan view of the underside of the apparatus shown in FIG. 1, and which illustrates the position of wheeled castors associated therewith..

FIG 7 is a perspective view of the display unit housing with the video display unit in a raised position.

FIG 8 is a front cross-sectional view taken in a vertical plane bisecting the view shown in FIG. 1, and which shows the relative positioning of various internal components of the apparatus.

FIG 9 is a top cross-sectional view taken in a horizontal plane through the upper part of the view shown in FIG. 7, and which shows the positioning of rollers and electromagnetic locking pins associated with the display unit housing.

DETAILED DESCRIPTION OF THE INVENTION

With reference to the drawings and, in particular reference to FIGS. 1-4, the apparatus shown comprises a front panel 190 coupled to a rear and side cover 230. The panel and the cover may be fabricated as integral moldings of a sturdy material, preferably laminated wood or a suitable polymeric material. They and, as well, internal components referred to below, are supported by a base 150 which also may be fabricated from a suitable polymeric material or high density wood board.

A handle 130 is recessed into cover 230 which when used in conjunction with the wheels 650 (see FIG. 6b) render the entire invention portable or easily movable. A thin-screen video display unit 110 is mounted on a pivoting base 100 which allows the screen to move through 180 degrees for convenient viewing. At the top of display unit 110 is a cover 120 fabricated from a suitable polymeric material or wood which covers the top of the invention when the screen is in a retracted position (see FIG. 4).

Display unit 110 will only be described herein to the extent that it is relevant to the operation of the invention, however, it should be noted that this invention would be suitable for various types of thin screens including liquid crystal diode (LCD), plasma and organic light-emitting diode (OLED) screens of various sizes.

The player for an optically readable disk 170 will only be described herein to the extent that it is relevant to the operation of the invention. This invention would be suitable for various types of optically readable disks which could read audio and video disks of a wide variety of formats.

Commands for operating the apparatus may either be inputted via the onboard front control panel 160 or via an external infra-red remote control. The infra-red sensor is indicated as 192 on the front control panel.

Left and right full range speaker assemblies 140 and 180 respectively as well as a sub-woofer 191 are mounted on the front panel behind grills made from a polyester fabric or suitably molded polymeric material suitable for the propagation of sound to the exterior of the invention.

Referring to FIG. 2 a panel 200 is mounted on the lower portion of the rear and side cover 230. A plurality of connectors are located on this panel for the input and output of digital and analog data. Left and right speaker external outputs 240 and 250 respectively are also provided. A DVI - High Density Television input 260 is also provided allowing for a fully uncompressed High Density signal from any similarly equipped DVI set-top box or computer. An AC mains cord 210 is shown to provide power to the invention.

In reference to FIG. 3, a plinth 830 which may be composed of a suitable polymeric material or aluminum is visible. This will provide support for the swivel base 100 and the display unit 110.

As best indicated in views 5a and 5b, front panel 190, base 150, thin-screen video display unit housing 560 and rear and side cover 230 (FIG. 5b only) are attached by screws 550 or otherwise fixed. The most sensitive and the heaviest components are located in the lower 1/3 of the apparatus. This particularly advantageous arrangement ensures the stability of the apparatus from falling over and protects the most sensitive electronic components.

As best seen in FIG. 6a, a motorized drive 580, drive shaft, 610 and spindle 630 is recessed into the side panel of the thin-screen enclosure. The motorized drive unit is controlled

by a microprocessor to ensure that it advances in a precise manner to raise or lower display unit 110. The shaft and spindle are constructed of a steel alloy. The belt 592 and spindle are toothed to ensure that there is no slippage of the belt.

FIG. 6b displays the position of wheeled castors 650. They are mounted to the underside of base 150. This view also shows a fan 840 which is used to cool the apparatus.

FIG. 7 illustrates the positioning of a belt-drive system on housing 560. The housing may be formed from injection molded glass-fibre reinforced polymeric material, sheet metal or other suitable material. The positions of electromagnetic locking pins 570 within the housing 560 are indicated.

FIG. 8 depicts a shielded ribbon cable 800 for providing power and a video signal to display unit 110. When the display unit is in a retracted position, the connector will be bent over itself. This cable is manufactured from shielded, stranded copper wire or other appropriate material which is flexible.

FIG. 8 also depicts the position of the main electronic components 540 used for the operation of the apparatus. These components would include inter alia, a controller board, TV tuner AM/FM tuner, a power supply and an audio amplifier. These are only described herein to the extent that they are relevant to the operation of the invention.

FIG. 9 illustrates the positioning and functioning of rubber wheel guides 910 and the electromagnetic locking pins 570. The wheels are inset within plinth 830 in a vertical position and run within guide rails 920 which run vertically inside the thin-screen enclosure. These pins will lock display unit 110 (not shown in FIG. 9) in place whilst in an unpowered mode. This will ensure that the screen will remain in a raised position in the event of a loss of mains power to the invention. The circuit to the electromagnets will be powered during the raising and lowering of

the display unit to unlock plinth 830. This will be achieved in a coordinated manner controlled by a microprocessor chip.

Although the invention has been described in connection with a preferred embodiment, it should be understood that various modifications, additions and alterations may be made to the invention by one skilled in the art without departing from the spirit and scope of the invention as defined in this application.

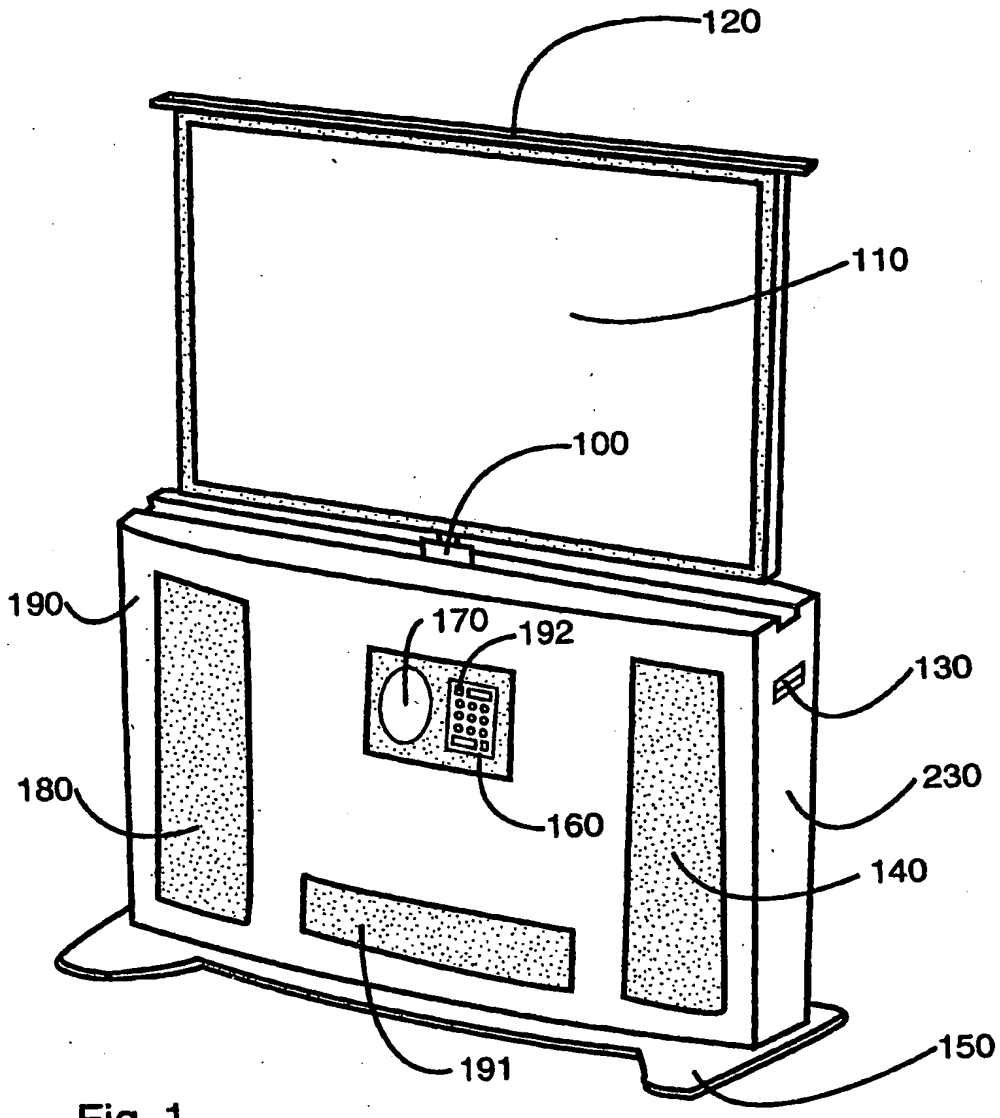


Fig. 1

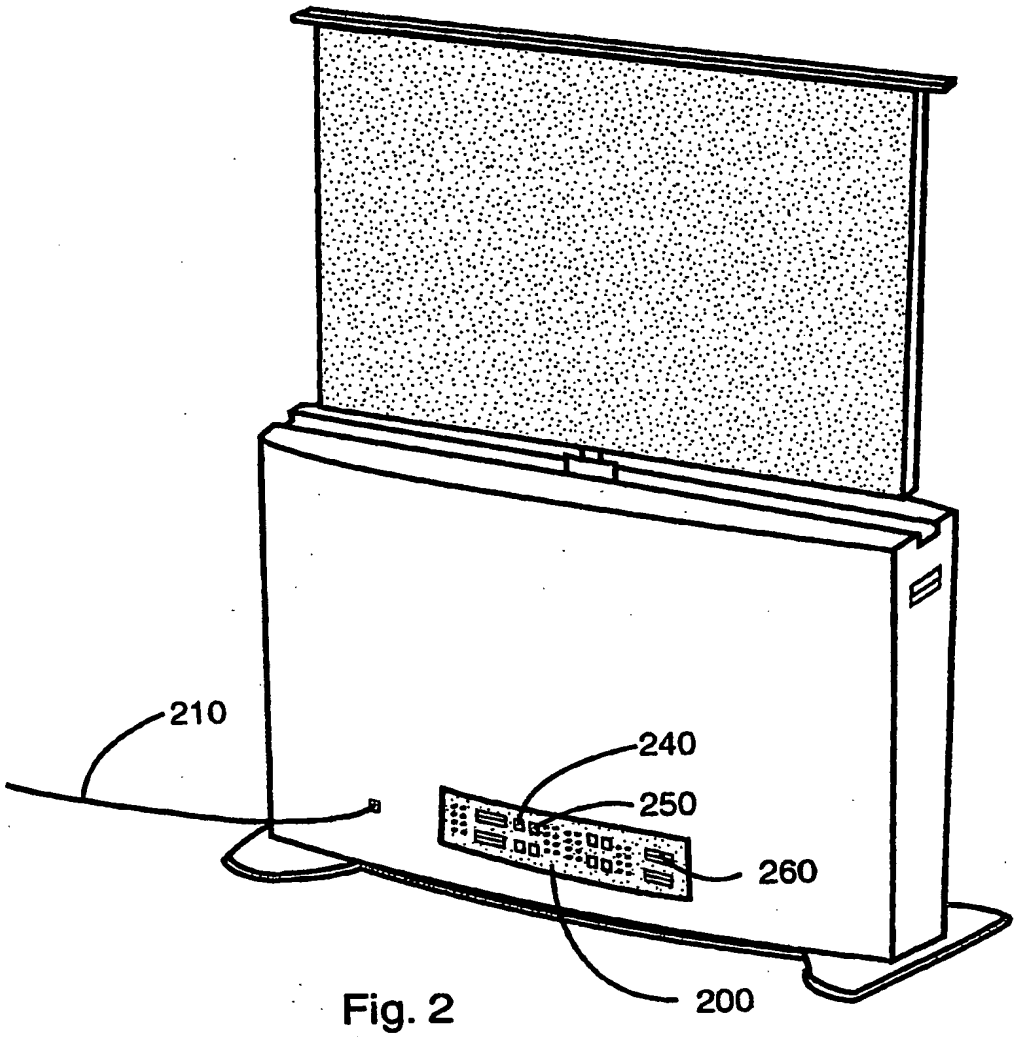


Fig. 2

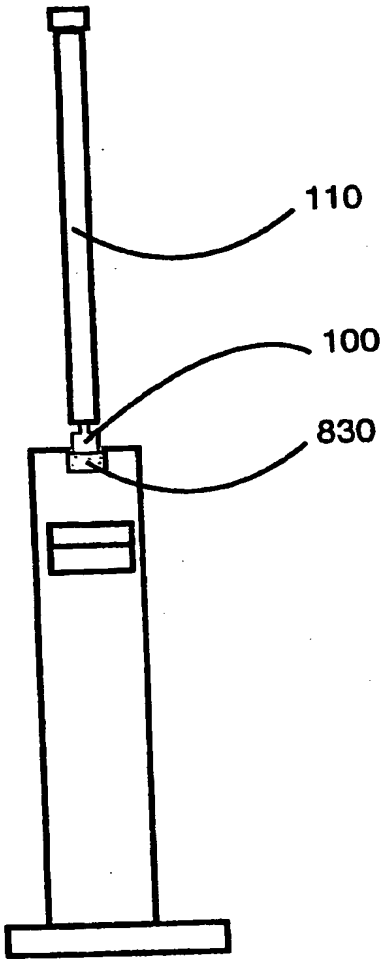


Fig. 3

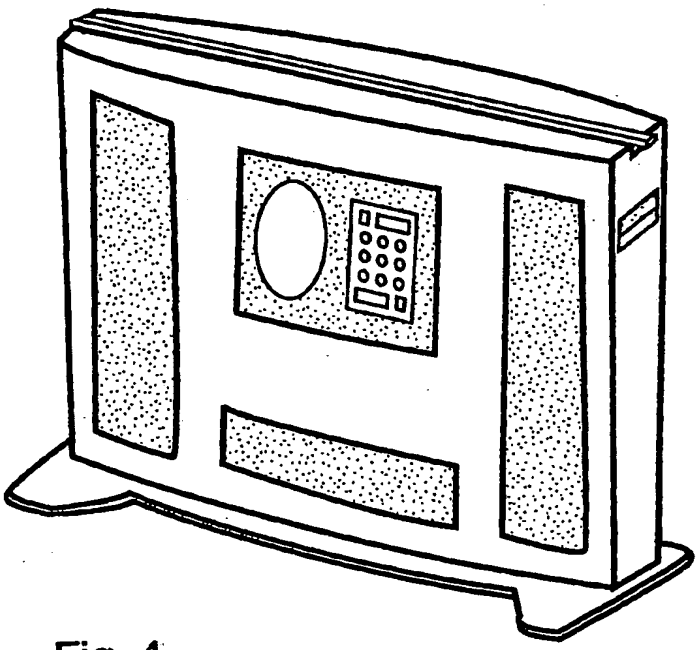


Fig. 4

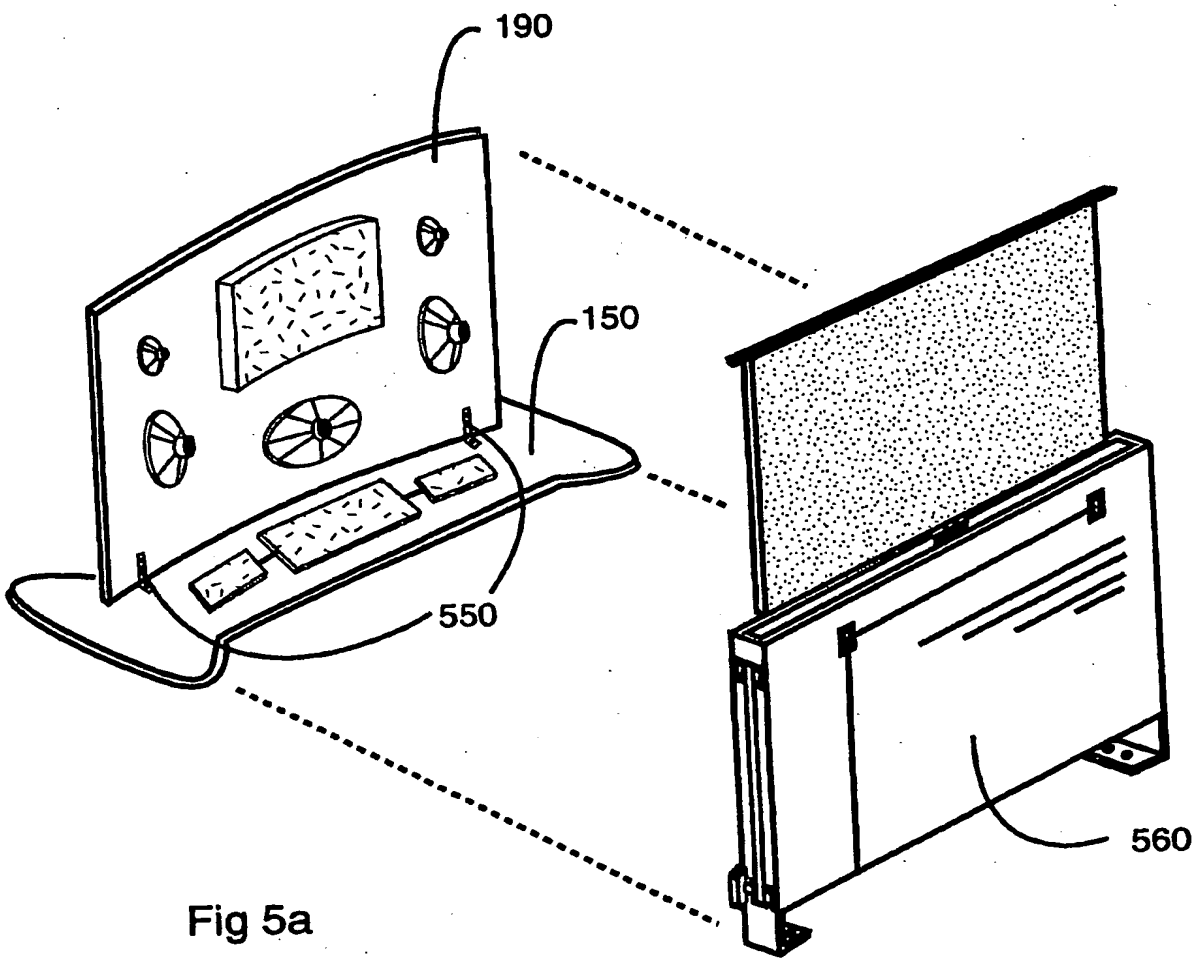


Fig 5a

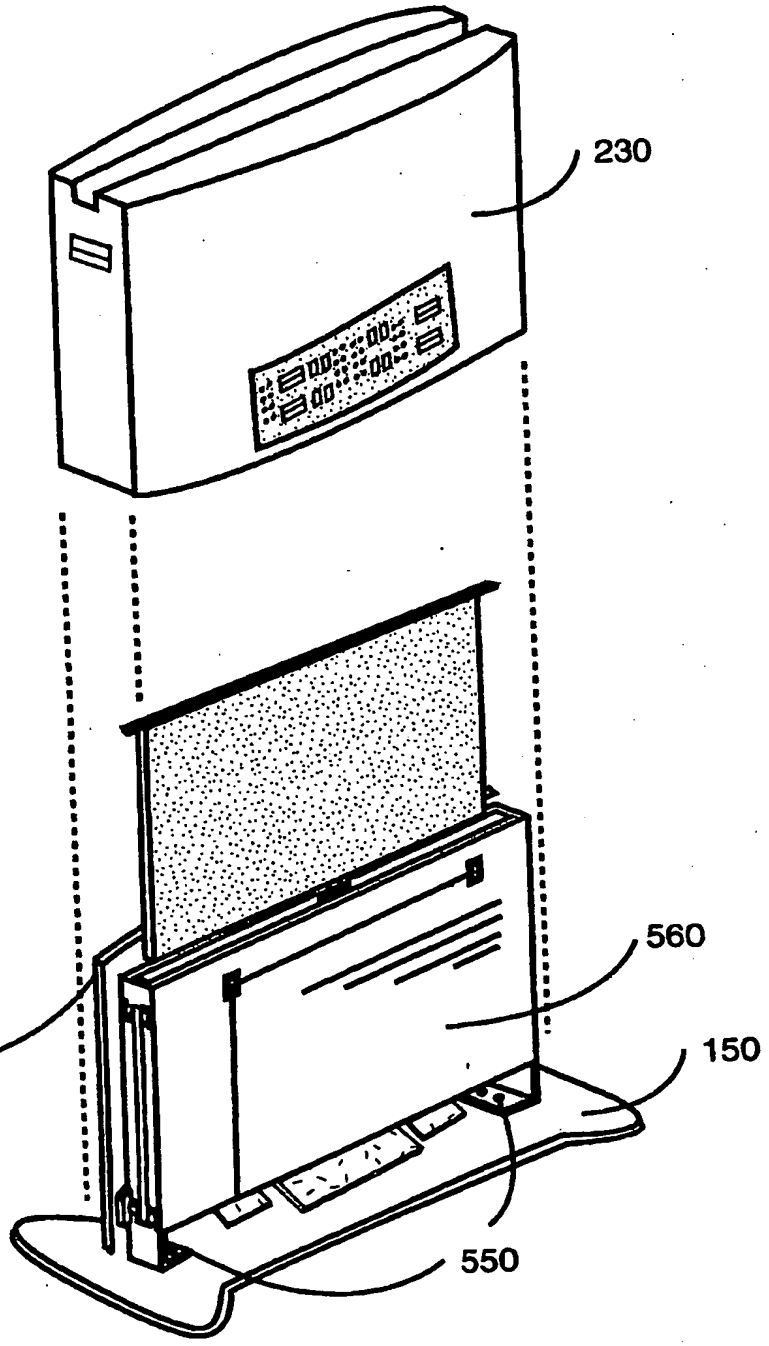


Fig. 5b

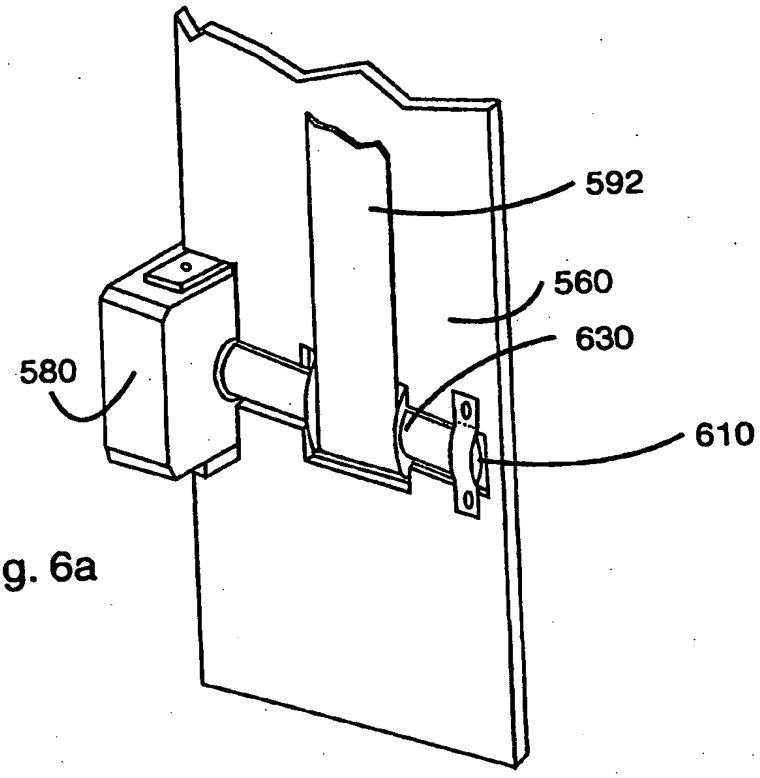


Fig. 6a

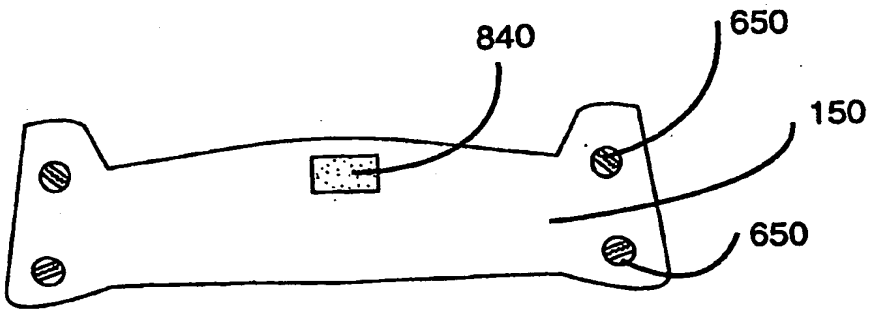


Fig. 6b

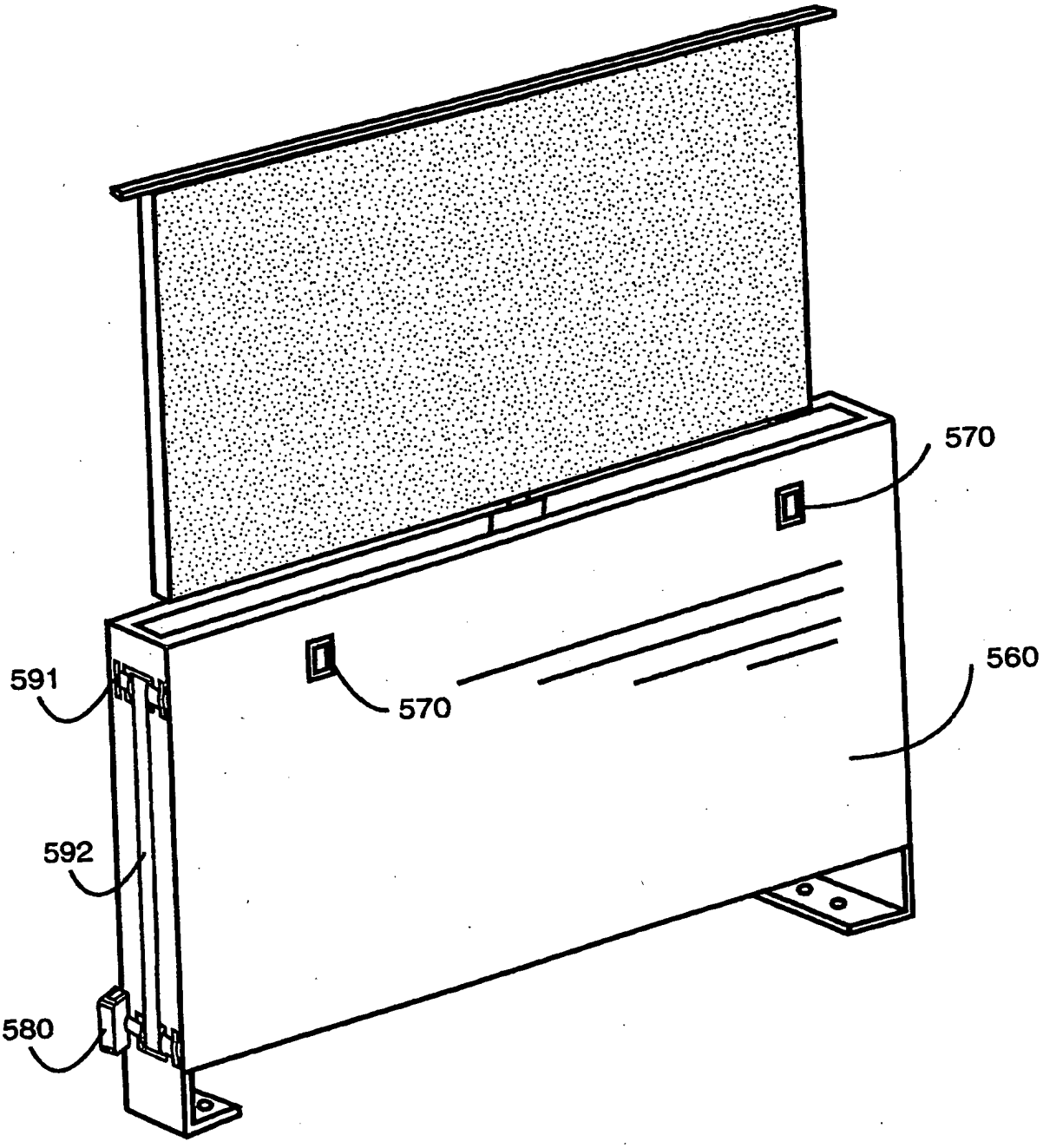
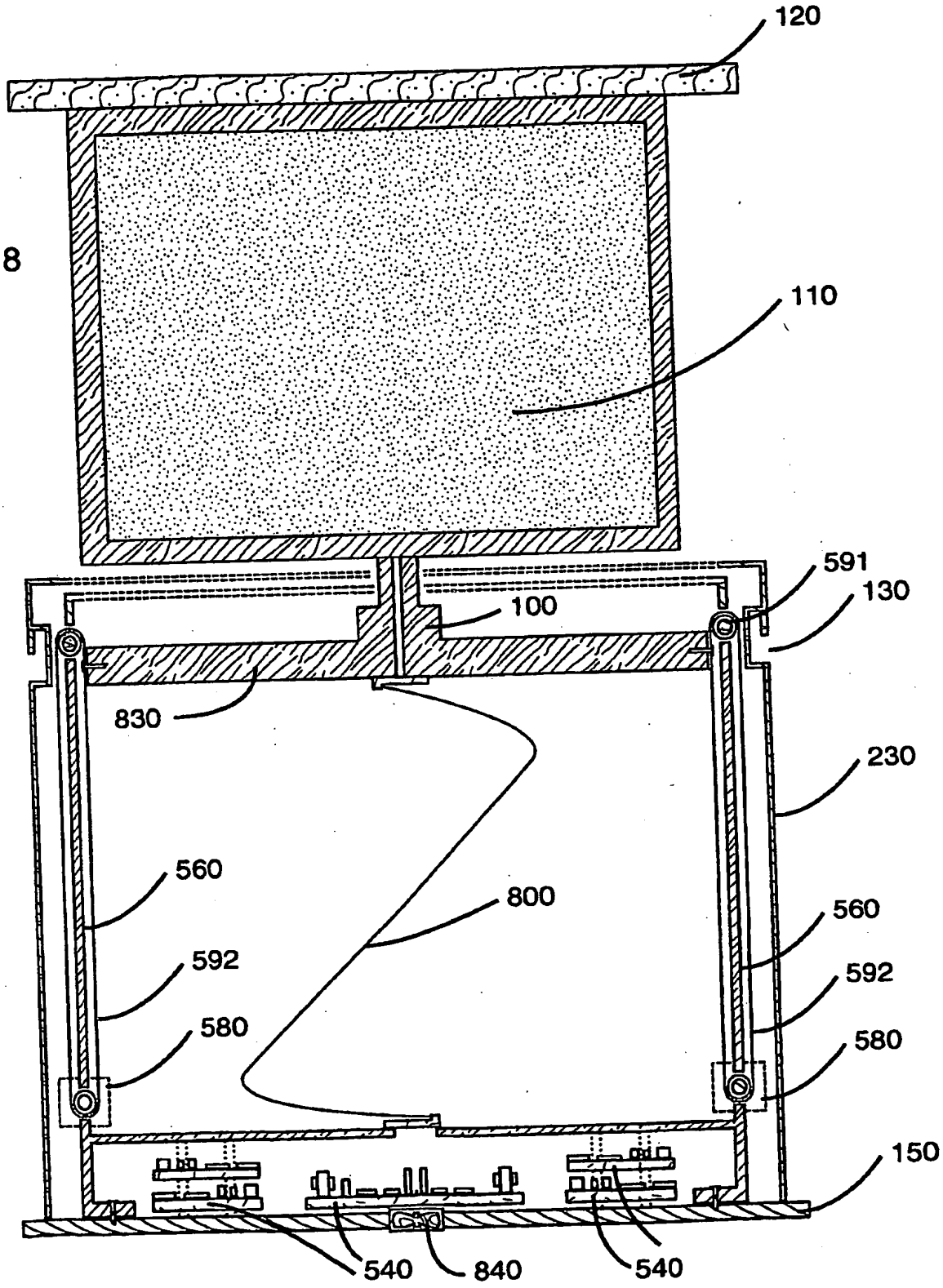


Fig. 7

Fig. 8



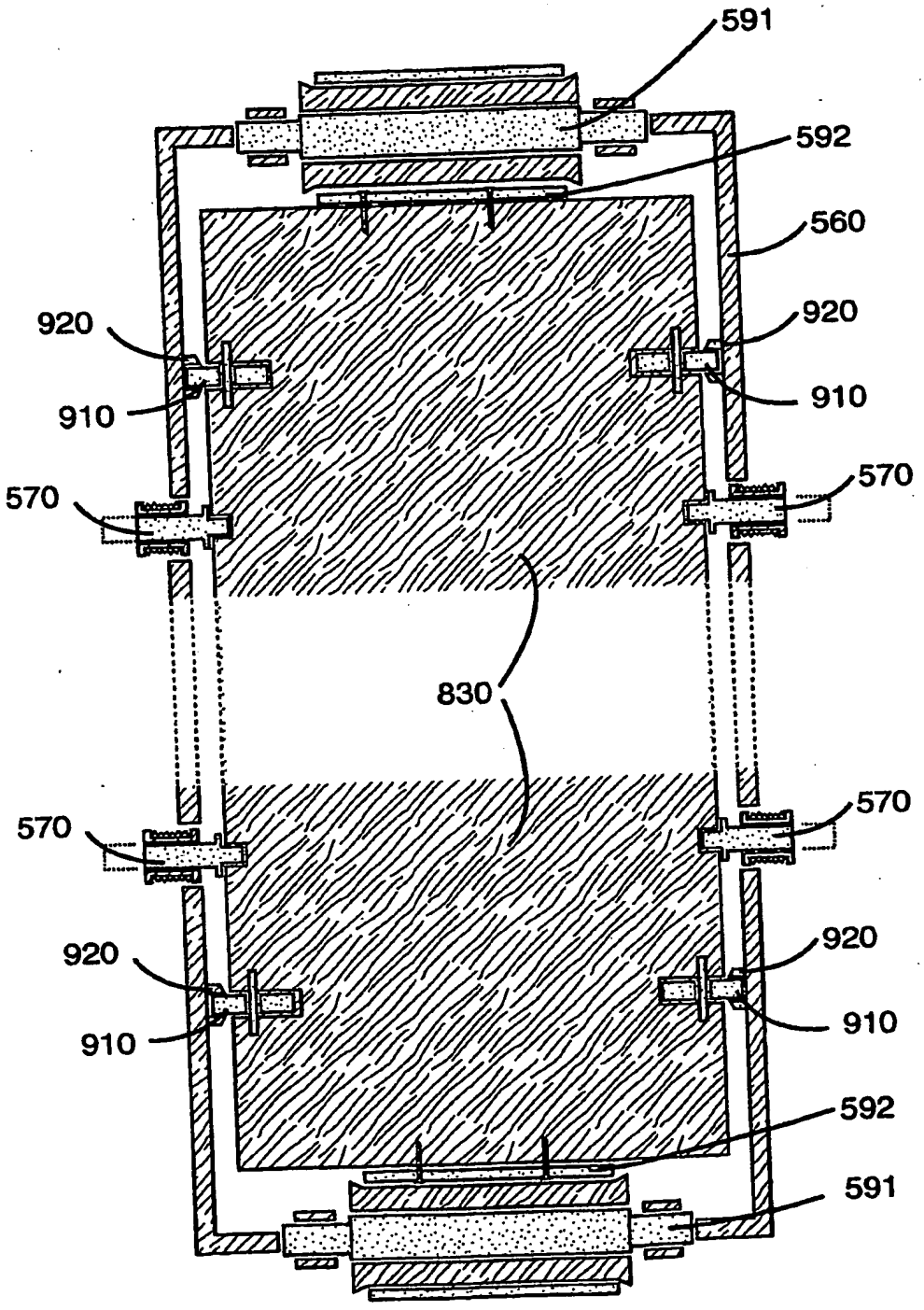


Fig 9

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PATENT COOPERATION TREATY

PCT/CA04/002212

From the INTERNATIONAL BUREAU

PCT

NOTIFICATION CONCERNING
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(PCT Administrative Instructions, Section 411)

To:

TURLOCK, Lance, A.
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471-7231-120th Street
Delta, British Columbia V4C 6P5
CANADA

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International publication date *(day/month/year)*	Priority date *(day/month/year)* 23 January 2004 (23.01.2004)
Applicant FREEMAN, Basil, Norman	

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Priority date	Priority application No.	Country or regional Office or PCT receiving Office	Date of receipt of priority document
23 January 2004 (23.01.2004)	60/538,216	US	13 April 2005 (13.04.2005)

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